

§ 1065.745 Coolants.

(a) You may use commercially available antifreeze mixtures or other coolants that will be used in your engine in use.

(b) For laboratory testing of liquid-cooled engines, you may use water with or without rust inhibitors.

(c) For coolants allowed in paragraphs (a) and (b) of this section, you may use rust inhibitors and additives required for lubricity, up to the levels that the additive manufacturer recommends.

§ 1065.750 Analytical gases.

Analytical gases must meet the accuracy and purity specifications of this section, unless you can show that other specifications would not affect your ability to show that your engines com-

ply with all applicable emission standards.

(a) Subparts C, D, F, and J of this part refer to the following gas specifications:

(1) Use purified gases to zero measurement instruments and to blend with calibration gases. Use gases with contamination no higher than the highest of the following values in the gas cylinder or at the outlet of a zero-gas generator:

(i) 2% contamination, measured relative to the flow-weighted mean concentration expected at the standard. For example, if you would expect a flow-weighted CO concentration of 100.0 mmol/mol, then you would be allowed to use a zero gas with CO contamination less than or equal to 2.000 mmol/mol.

(ii) Contamination as specified in the following table:

TABLE 1 OF § 1065.750—GENERAL SPECIFICATIONS FOR PURIFIED GASES

Constituent	Purified air ¹	Purified N ₂ ¹
THC (C ₁ equivalent)	<0.05 µmol/mol	< 0.05 µmol/mol
CO	<1 µmol/mol	< 1 µmol/mol
CO ₂	< 10 µmol/mol	< 10 µmol/mol
O ₂	0.205 to 0.215 mol/mol	< 2 µmol/mol
NO _x	< 0.02 µmol/mol	< 0.02 µmol/mol

¹ We do not require these levels of purity to be NIST-traceable.

(2) Use the following gases with a FID analyzer:

(i) *FID fuel*. Use FID fuel with an H₂ concentration of (0.400 ±0.004) mol/mol, balance He. Make sure the mixture contains no more than 0.05 µmol/mol THC.

(ii) *FID burner air*. Use FID burner air that meets the specifications of purified air in paragraph (a)(1) of this section. For field testing, you may use ambient air.

(iii) *FID zero gas*. Zero flame-ionization detectors with purified gas that meets the specifications in paragraph (a)(1) of this section, except that the purified gas O₂ concentration may be any value. Note that FID zero balance gases may be any combination of purified air and purified nitrogen. We recommend FID analyzer zero gases that contain approximately the flow-weighted mean concentration of O₂ expected during testing.

(iv) *FID propane span gas*. Span and calibrate THC FID with span concentrations of propane, C₃H₈. Calibrate on a carbon number basis of one (C₁). For example, if you use a C₃H₈ span gas of concentration 200 µmol/mol, span a FID to respond with a value of 600 µmol/mol. Note that FID span balance gases may be any combination of purified air and purified nitrogen. We recommend FID analyzer span gases that contain approximately the flow-weighted mean concentration of O₂ expected during testing.

(v) *FID methane span gas*. If you always span and calibrate a CH₄ FID with a nonmethane cutter, then span and calibrate the FID with span concentrations of methane, CH₄. Calibrate on a carbon number basis of one (C₁). For example, if you use a CH₄ span gas of concentration 200 µmol/mol, span a FID to respond with a value of 200 µmol/mol. Note that FID span balance gases may be any combination of purified air